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ABSTRACT

This survey of the standardized testing program summarizes the data accumulated from the most recent administration of selected instruments in October 1973. It compares these findings with information from previous years and points to a few trends and possible conclusions. Assessment of mental abilities--1973-74 is presented for grade 1, and assessment of aptitude and achievement--1973-74 is presented for grades 5 and 8. The ACT report includes information on the four measures of academic ability and data about additional student characteristics that appear to have a bearing on success in college. The appendixes contain the testing schedule 1969-74 and item analysis for grades 5 and 8. (RC)

ED 098264

Analysis of Standardized Testing Program Results 1973-1974

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Grades 1, 5, and 8 And ACT Report

TM 004 059

Evaluation, Assessment and Testing Unit
State Department of Education
Santa Fe, New Mexico

April 1974

INTRODUCTION

This survey of the standardized testing program summarizes the data accumulated from the most recent administration of selected instruments in October 1973. It compares these findings with information from previous years and points to a few trends and possible conclusions.

We hope it will be helpful to those who make use of test results in their work with individual students, classrooms and district-wide program planning. We trust it will be of interest also to the more generally concerned individuals who may wish to learn more about this aspect of the work of the State Department of Education.

If questions arise which are not adequately covered in this report, please contact the Evaluation, Assessment and Testing Unit for clarification.

April 1974

TABLE OF CONTENTS

	PAGE
Grade One - Assessment of Mental Abilities - 1973-74	1
Grade Five - Assessment of Aptitude and Achievement - 1973-74	8
Grade Eight - Assessment of Aptitude and Achievement - 1973-74	15
ACT Report - February 1974	28
Appendix A - Testing Schedule 1969-1974	39
B - CTBS/SFTAA - Grade 5	40
C - CTBS/SFTAA - Grade 8	41
D - Grade 5 - Item Analysis - October 1973	42
E - Grade 8 - Item Analysis - October 1973	52
F - Grade 5 - Item Analysis - April 1971	61

LIST OF TABLES AND GRAPHS

		PAGE
Grade 1 - Table 1.	Comparison of Mean Test Scores on Otis-Lennon Mental Ability Test for 1971-72, 1972-73, and 1973-74 by sub-group	2
Table 2.	Formal Early Childhood Education prior to September 1973	5
Graph A.	Early Childhood Education by Ethnic Group and Its Effect on OLMAT Scores	5
Grade 5 - Table 1.	Academic Aptitude Scores by Group for Five Years	9
Table 2.	Total Battery Achievement Score by Ethnic Sub-group, District Size, Public, Non-public, and National Reference Group	10
Table 3.	April 1971 and October 1973 Item Analysis - Sub-test Totals	13
Graph A.	Comprehensive Tests of Basic Skills - State Means - 1971-1973	12
Grade 8 - Table 1.	Academic Aptitude Scores by Ethnic Group and Public-Nonpublic Category for three years	16
Table 2.	Total Battery Achievement Mean Grade Equivalent by Ethnic Group, District Size, and Public-Nonpublic Category for Three years	16
Table 3.	Average Grade Equivalent Scores of Eighth Grade Students and Their Scores Three Years Earlier as Fifth Grade Students by Sub-group	17

LIST OF TABLES AND GRAPHS CONT'D

			PAGE
	Table 4.	Total Number of Items by Sub-Test on which New Mexico Students Scored 10% or More Below the National Reference Group	20
	Table 5.	A Comparison of Percent Right by Sub-tests Administered to the Same Population in April 1971 and October 1973	25
	Graph A.	CTBS - State Means - 1971-1973	18
ACT Report -	Table 1.	ACT Means - New Mexico 1967-1973	30
	Table 2.	Difference in New Mexico and National Scores	32
	Table 3.	Distribution of High School Grades 1972-73	34
	Graph A.	ACT Mean Scores - New Mexico High Schools - 1970-1973	31
	Graph B.	ACT Scores - New Mexico 1972-73 and National 1970-73	35

GRADE ONE-ASSESSMENT OF MENTAL ABILITIES - 1973-74

This is the third vear in which baseline information has been gathered in the first grade through the administration of the Otis-Lennon Mental Abilitv Test (OLMAT), Primary II, Form J. All students in grade one, approximately 21,000, took this test at some time during the first two weeks of October. Results are shown in Table 1 for 1973-74 and the two previous years. Scores are reported on an age deviation scale ranging from 1 to 150 with a mean of 100 and a standard deviation of 16 points.

The total state mean has increased from 96.0 in 1971-72 to 98.5 in 1973-74. All sub-groups contribute to this increase except the category "Other." An increase, not included in the totals, is shown in the mean score for the 229 children who took the test in Spanish, from 84.0 in 1972-73, to 87.7 in 1973-74.

The category "Asian American" was added for the current vear; otherwise there has been no change in the breakdown of ethnic subgroups. It is interesting to note for 1973 increases ranging from .9 to 1.3 in scores attained by Spanish, Indian and Black first-graders. This may be attributed, in part, to some of the special programs that have been initiated recently. The Spanish group scores have increased an impressive 4.0 from 1971-72 to 1973-74.

Table 1

COMPARISON OF MEAN TEST SCORES ON OTIS-LENNON
MENTAL ABILITY TEST FOR
1971-72, 1972-73, and 1973-74
BY SUB-GROUP

GROUP	1971-72	1972-73	1973-74	N - Count 73-74
ANGLO	103.9	105.2	105.4	8,972
SPANISH	90.0	92.7	94.0	8,349
INDIAN	83.6	85.1	86.1	1,802
BLACK	89.8	90.3	91.2	467
ASIAN AMERICAN			102.9	61
OTHER	98.9	100.8	101.5	109
NON-PUBLIC	100.0	101.2	102.5	1,140
PUBLIC	95.7	97.3	98.3	19,434
TOTAL STATE	96.0	97.6	98.5	20.574
NATIONAL	100.0	100.0	100.0	
Spanish Language Administration		84.0	87.7	229

A recommendation was made in earlier reports that "greater and more specific effort should be expended to enrich the educational experiences of minority group and bilingual children at the pre-first level and especially during the first year of school."* A further recommendation was made to continue testing to gain information on the effectiveness of such programs as they were introduced.

The Bilingual Multicultural Act, implemented in 1973, provides funds to insure equal educational opportunities for culturally diverse students in grades K-3. Data for OLMAT and other tests were used to show a need for special programs designed to emphasize the cultural background of the student, encourage affective development, and improve proficiency in two languages.

In 1972-73, 33 districts offered bilingual education programs to their 8,961 students at a cost of $2,590,034. Twenty-eight schools had kindergarten programs and 71 had first grade programs. In 1973-74, there are 14,535 students in bilingual classes costing $2,556,419. It is estimated that 23,696 children in grades 1-6 need such programs.

In addition, the 1973 legislature provided $800,000 to fund enrichment programs at the pre-first level for 2,269 of the 9,675 children attending various pre-first classes, i.e., Johnson-O'Malley, Title I, and others, in 77 districts throughout the state. Several important components of the early childhood education enrichment programs are pre- and

*"Assessment of Mental Abilities, School year 1972-73, Grade One," State Department of Education, March 1973, and school year 1971-72, March 1972.

post-testing of the pupils with the Boehm Test of Basic Concepts, the Vineland Social Maturity Scale, and a psychometor check list. There also is a competency-based evaluation of the effectiveness of on-site, in-service training of teachers and aides. This training can lead to 15 hours of college credit. Data on these programs will be available at the end of school year 1973-74. Next year approximately 12,800 children will be enrolled in pre-first classes. It is estimated that 20,205 are eligible.

One of the purposes of the first grade statewide testing is to note trends and patterns in entering scholastic ability levels as well as to provide information about questions of general concern. Specifically, much emphasis has been placed upon the impact of pre-school programs in New Mexico. Therefore, schools and classroom teachers were asked to provide information concerning each child's participation in pre-school programs.

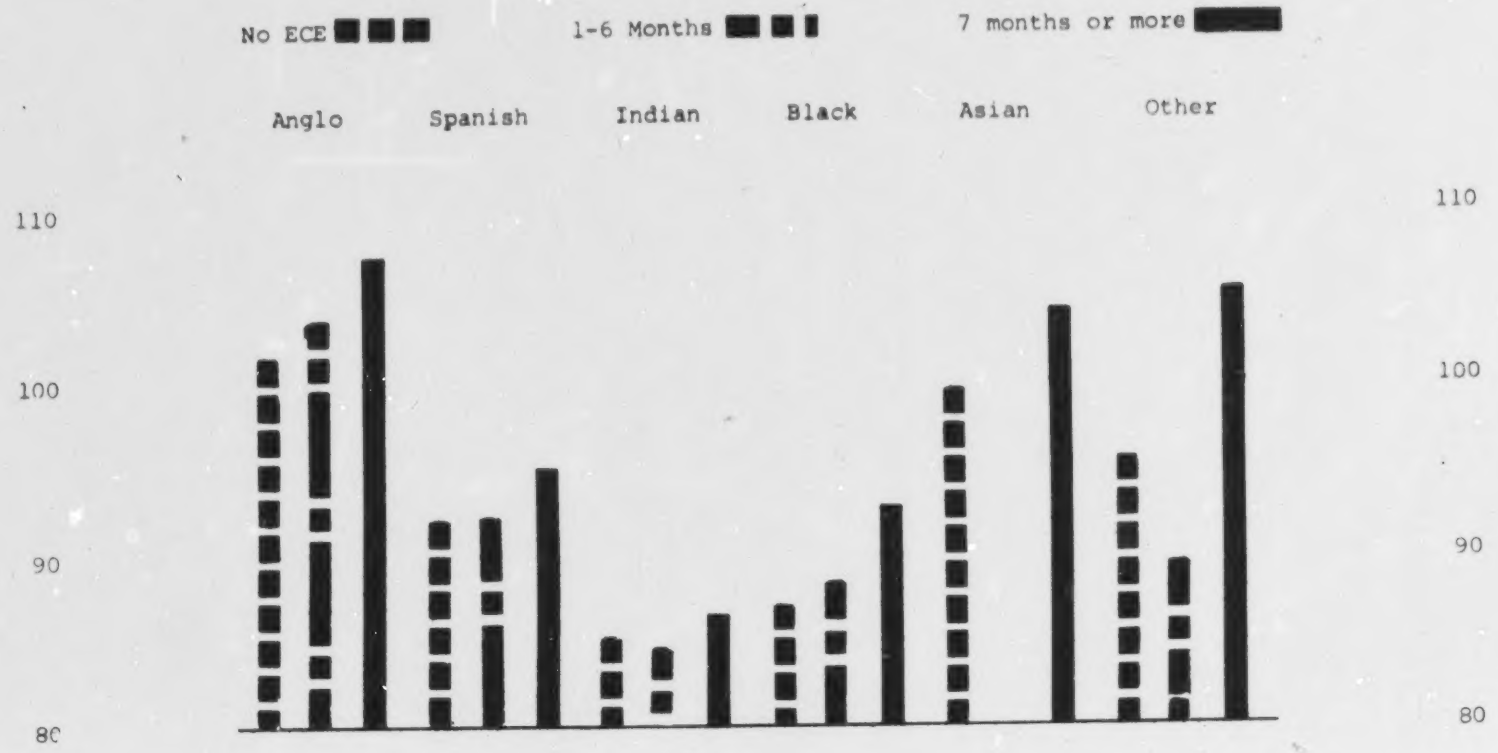
Table 2 shows the scores attained by children who had attended some type of formal educational program prior to entering first grade in September 1973. Graph A illustrates the effect of this variable within the ethnic groups tested.

It is immediately apparent that early childhood education programs of seven months or more duration have a positive effect on student performance on the Otis-Lennon Mental Ability Test. Those children who had participated in such pre-first grade learning experiences

TABLE 2. FORMAL EARLY CHILDHOOD EDUCATION PRIOR TO SEPTEMBER 1973

Months	Total	Anglo	Spanish	Indian	Black	Asian American	Other
No ECE	96.5	101.7	92.1	85.2	87.1	99.7	95.6
	5,438	2,634	2,437	183	114	17	37
1 - 6 months	96.9	103.8	92.1	84.7	88.4	0	89.4
	1,562	678	772	61	28	0	10
7 or more months	99.4	107.3	95.0	86.5	92.9	104.1	105.1
	12,866	5,529	5,251	1,555	322	45	66

GRAPH A. EARLY CHILDHOOD EDUCATION BY ETHNIC GROUP AND ITS EFFECT ON OLMAT SCORES



scored from 1.3 to 5.8 points higher than others in the same ethnic group who had no such preparation for first grade.

Programs of six months or less duration do not seem to have as much impact. There is little difference in scores for those children who have had a brief early childhood education experience when compared with those who have had none. In some instances, a negative effect is observed, e.g., in "Indian" and "Other" categories, though the numbers of students involved are so small as to make firm conclusions difficult.

Approximately 560 youngsters answered fewer than 15, out of a possible 55, questions. According to the test publisher, these students should be retested with a lower level of the test or referred for individual testing and evaluation. On no account should they be "labeled" by this one test administration.

To assist the classroom teachers in using these test results more effectively, the State Department of Education requested that the test company provide a specialized handbook for New Mexico Schools, Questions and Answers - A Supplementary Teacher's Guide. This publication gives step-by-step directions for interpretation and application of scores in working with individual students, with groups, and in parent conferences. Regional workshops were also conducted by the SDE, with the assistance of test company representatives, as the results were returned to the schools in November and December, with special emphasis on teacher use in New Mexico classrooms.

In conclusion, although, the overall pattern remains much the same, gains are beginning to appear in the scores of the sub-groups which have been of greatest concern since the inception of the testing program. The changes in first grade scholastic aptitude test results appear to be positive. Sustained effort is increasingly necessary to provide improved educational opportunities for those students who begin school at an educational disadvantage.

Data gathering should be continued to provide information for parents, children, teachers, administrators and others involved in the education process.

GRADE 5 - ASSESSMENT OF APTITUDE AND ACHIEVEMENT - 1973-74

Approximately 24,000 fifth graders were tested in October 1973 with the Short Form Test of Academic Aptitude (SFTAA) Level 3, and the Comprehensive Tests of Basic Skills (CTBS) Form Q, Level 2. The 1973 testing provides the third year of statewide results at this grade level and time of administration. In 1969-70 the California Test of Mental Maturity (CTMM) was used with the CTBS, instead of the SFTAA, on an 8% sample of fifth graders, and in April 1971 all fifth grade students were tested with the CTMM and CTBS. Appendix A gives a schedule of standardized tests administered at all grade levels to date.

From the testing described above, three years of completely comparable data and two years of relatively comparable data are available. Table 1 gives aptitude scores (on an age deviation standard scale ranging from 1 to 150 with a mean of 100 and a standard deviation of 16) attained by various groups over this period of time.

TABLE 1

Grade 5

ACADEMIC APTITUDE SCORES BY GROUP FOR FIVE YEARS

GROUP	1969-70	1970-71	1971-72	1972-73*	1973-74
Anglo	111	109	103		102
Spanish	96	95	91		90
Indian	92	91	85		85
Black	92	93	89		88
Asian American					96
Other	103	104	98		98
Non-Public	NA	108	101	99	101
Public	102	102	96	96	95
National	100	100	100	100	100

*Academic aptitude scores for ethnic groups were not provided for school year 1972-73.

The effect of the change in instruments as well as, possibly, the time of testing is immediately apparent in the difference in scores from 1970-71 to 1971-72. In addition there has been a one-point drop in most sub-group scores from 1971-72 to 1973-74. The state mean of 95 is significantly below the national norm of 100.

Table 2 gives achievement scores over this same five-year period. It is important to note that comparison between the ethnic sub-group scores for 1973-74 and preceding years is not practical because for 1973 the grade equivalents were computed

from the means of raw scores (RS) whereas, in previous years the raw scores were converted to grade equivalents and means (M) were derived from the converted scores. For all other groups, however, the mean grade equivalents were computed and are directly comparable. For those years when the tests were administered in April, the scores have been adjusted by the percentage gain method.

TABLE 2

Grade 5

TOTAL BATTERY ACHIEVEMENT SCORE BY ETHNIC SUB-GROUP
DISTRICT SIZE, PUBLIC, NON-PUBLIC,
AND NATIONAL REFERENCE GROUP

Mean Grade Equivalent

GROUP	1969-70	1970-71	1971-72	1972-73	1973-74
Anglo	5.5	5.5	5.3	5.3	4.9*
Spanish	4.3	4.3	4.3	4.3	4.1*
Indian	3.7	3.9	3.8	3.8	3.7*
Black	3.9	4.2	4.1	4.1	4.0*
Asian American					4.4*
Other	4.3	4.1	5.0	5.1	4.7*
1-500	4.3	4.8	4.6	4.8	4.7
501-1000	4.1	4.3	4.5	4.5	4.4
1001-5000	4.8	4.6	4.6	4.6	4.5
Over 5000	4.8	5.1	4.8	4.8	4.6
Non-Public	NA	5.6	5.1	5.0	5.1
Public	4.9	4.9	4.7	4.6	4.6
National	5.1	5.1	5.1	5.1	5.1

*Raw Score Grade Equivalent

Graph A displays subtest scores for a three-year period. The group tested in October 1971 attained higher achievement scores than either of the two groups tested in subsequent years, with an academic aptitude score only one point higher than the October 1973 group. The 1973 class out-performed the 1972 fifth graders in reading comprehension and language expression, while the 1972 group was slightly better in arithmetic comprehension. Appendix B gives CTBS and SFTAA scores for three years by total group and three major ethnic sub-groups.

An item analysis for the entire state has been compiled and a summary of those items which appeared comparatively difficult for this year's fifth graders, i.e., on which there was a 10% difference between the New Mexico percent of right responses and the national percent right, is attached as Appendix D. Each district receives a similar analysis and is encouraged to make optimum use of this and all other reports to identify curriculum areas in need of special attention.

For the state as a whole, Language Mechanics (punctuation and capitalization), Spelling, Arithmetic Computation (particularly subtraction, multiplication and division of fractions) and Arithmetic Applications appear to be subjects of special concern.

In April 1971, the CTBS were administered to 13,623 fifth graders and an item analysis was provided. A comparison between analyses for the 1971 and 1973 classes is given in Table 4.

GRAPH A
COMPREHENSIVE TESTS OF BASIC SKILLS
GRADE 5 - STATE MEANS

October 1971
October 1972
October 1973

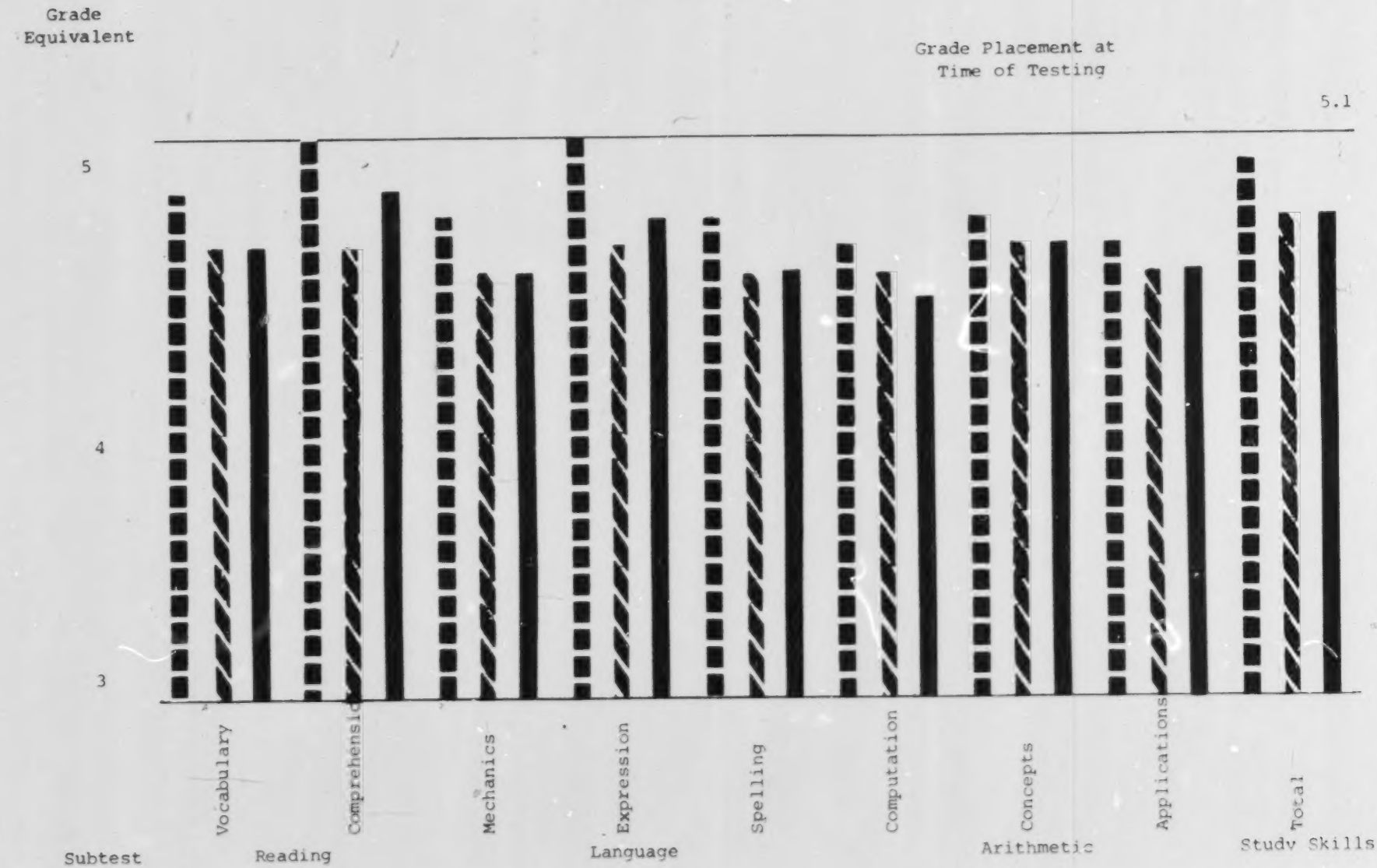


TABLE 3

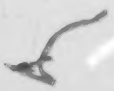
Grade 5 - April 1971 & October 1973

Item Analysis - Sub-test Totals

	4-71 CTBS Q2 Grade 5.7 % Right	Difference	10-73 CTBS Q2 Grade 5.1 % Right
1. Reading Vocabulary	62	7	55
2. Reading Comprehension	61	7	54
3. Language Mechanics	60	12	48
4. Language Expression	58	7	51
5. Language Spelling	68	14	54
6. Arithmetic Computation	70	15	55
7. Arithmetic Concepts	64	10	54
8. Arthmetic Applications	60	13	47
9. Study Skills - Reference	53	8	45
10. Study Skills - Graphic	60	8	52

It is immediately apparent that the October class achieved a lower percent right in every sub-test than the April group. Generally this can be attributed to the fact that the April group had been in school six months longer before taking the test, with a consequent learning increment. There are, however, some differences which appear to be great enough to call for further investigation in Language Mechanics, Spelling, Arithmetic Computation, Concepts, and Applications.

If these skills are important to New Mexico fifth graders, then special concern may be expressed on the basis of this test as an indicator of student performance. The Evaluation Unit has prepared guidelines to assist teachers and administrators in using these test results, and workshops are conducted each year after reports are returned to the districts. In addition, Field Services Consultants make extensive use of these data in working with local education agencies to improve educational opportunities for all students in New Mexico Schools.



GRADE 8 - ASSESSMENT OF APTITUDE AND ACHIEVEMENT - 1973-74

I

This report is based on the performance of 24,782 eighth grade students in both public and non-public schools in New Mexico who took the Short Form Test of Academic Aptitude (SFTAA) Level 4, and the Comprehensive Tests of Basic Skills (CTBS) Form Q, Level 3, in October 1973, as part of the state-mandated evaluation program. This is the third consecutive year these two tests have been administered at this level. The SFTAA was optional for eighth graders this year, and 4,492 students did not take it.

No great differences are apparent over this period of time in either aptitude or achievement. The pattern remains essentially the same for all sub-groups. There has been a three-month drop from 1972-73 in grade equivalent scores for schools with enrollment over 5,000. Nonpublic schools continue to score higher than public schools. In looking at the ethnic sub-group scores, we encounter the same situation as with the fifth grade: the selective frequency distributions for these populations were computed in raw score grade equivalents rather than mean grade equivalents, so direct comparison with previous years is not feasible. All other scores are reported in mean grade equivalents.

Tables 1 and 2 display total scores attained by various sub-groups over a three-year period.

TABLE 1 - Grade 8
ACADEMIC APTITUDE SCORES* BY ETHNIC GROUP
AND PUBLIC-NONPUBLIC CATEGORY FOR THREE YEARS

GROUP	1971-72	1972-73**	1973-74
Anglo	103	NA	103
Spanish	91	NA	92
Indian	85	NA	86
Black	88	NA	90
Asian American			99
Other	100	NA	100
Non-Public	100	102	103
Public	97	97	96
State Total			97
National	100	100	100

*Based on a standard scale with a range of 1-150, a mean of 100, and a standard deviation of 16.

**Scores for ethnic subgroups not provided.

TABLE 2
TOTAL BATTERY ACHIEVEMENT MEAN GRADE EQUIVALENT BY
ETHNIC GROUP, DISTRICT SIZE, AND PUBLIC-NONPUBLIC CATEGORY
FOR THREE YEARS

GROUP	1971-72	1972-73	1973-74	N-Count 1973-74
Anglo	8.2	8.2	[illegible]	10,805
Spanish	6.2	6.4	6.[illegible]	10,019
Indian	5.4	5.5	5.6*	1,794
Black	5.8	6.1	5.9*	470
Asian American			7.1*	107
Other	7.7	7.6	7.5*	878
Under 500	6.8	7.3	7.0*	678
501-1000	6.4	6.5	6.5	994
1001-5000	6.6	6.7	6.6	6,707
Over 5000	7.4	7.4	7.1	14,874
Non-Public	7.6	7.7	7.6	1,129
Public	7.2	7.2	7.1	23,253
Total			7.1	24,382
National	8.1	8.1	8.1	

*Raw Score Grade Equivalent

Graph A presents CTBS subtest scores for the past three years, which indicate reading vocabulary achievement has remained constant over this period while reading comprehension has declined. Language mechanics, expression and spelling scores increased over the previous year, while arithmetic concepts and application scores decreased. No score was close to grade placement at time of testing, except study skills. Appendix C gives actual state means over this period of time for the total group and the three major ethnic sub-groups.

Comparing grade equivalent scores attained by fifth graders in 1970-71 with the scores this same group achieved as eighth graders in 1973-74, (Table 3), we find that no sub-group gained three years. (This comparison could not be made for the ethnic sub-groups because of the different process used to compute their means in 1973-74.)

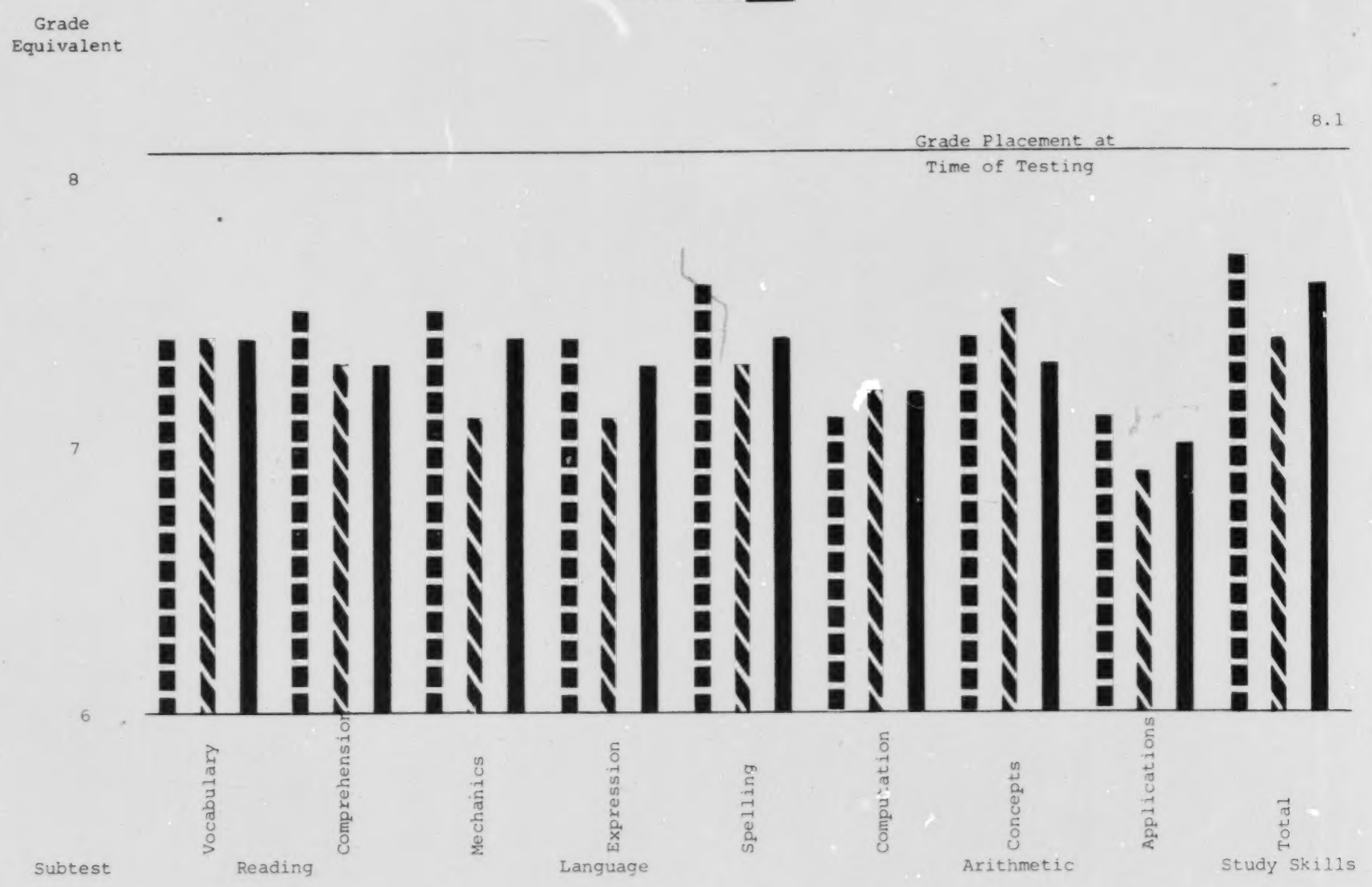
TABLE 3

AVERAGE GRADE EQUIVALENT SCORES OF EIGHTH GRADE STUDENTS AND THEIR SCORES THREE YEARS EARLIER AS FIFTH GRADE STUDENTS BY SUB-GROUP

	Grade 5 1970-71	Grade 8 1973-74	Increase
1-500	4.8	7.0	2.2
501-1000	4.3	6.5	2.2
1001-5000	4.6	6.6	2.0
5000 +	5.1	7.1	2.0
Non-Public	5.6	7.6	2.0
Public	4.9	7.1	2.2
National	5.1	8.1	3.0

GRAPH A
COMPREHENSIVE TESTS OF BASIC SKILLS
GRADE 8 - STATE MEANS

October 1971
October 1972
October 1973



An in-depth study of the item analysis for the entire state has been conducted by the Evaluation, Assessment and Testing Unit as well as by other units of the State Department of Education, and some findings are discussed below.

Every district has received an item analysis each year and has been encouraged to use it at the local level in identifying areas of special concern. It contains the number and percent of students answering correctly, incorrectly or omitting each item, and the percent of students in the publisher's reference group who answered correctly at the time the test was standardized (March 1968).

Ideally, for purposes of comparison, a standardized test should be given at the same time of the year it was administered to the national sample. However; New Mexico administers this test in October. By interpolation, a method of estimation only, it is possible to adjust the national reference group to reflect this difference in administration time. However, rather than use this process, an arbitrary figure of ten percentage points variance has been selected as the criterion for determining a closer examination of the individual items. Table 4 shows the number of items in each subtest on which the New Mexico population scored at least ten points below the National sample.

TABLE 4
Grade 8 - October 1973

TOTAL NUMBER OF ITEMS BY SUB-TEST ON WHICH NEW MEXICO STUDENTS SCORED 10% OR MORE BELOW THE NATIONAL REFERENCE GROUP

Subtest	Total Number of Items	Number NM Scored 10% below	NM % Right	Nat % Right
1. Reading Vocabulary	40	26	59	69
2. Reading Comprehension	45	20	59	68
3. Language Mechanics	25	10	60	68
4. Language Expression	30	13	53	64
5. Spelling	30	5	58	70
6. Arithmetic Computation	48	29	60	73
7. Arthmetic Concepts	30	18	61	71
8. Arithmetic Applications	20	14	56	71
9. Study Skills Reference	20	3	61	66
10. Study Skills Graphic	30	0	57	5.

The 40 items in the Reading Vocabulary subtest consist of short phrases with one word underlined and four possible synonyms for the underlined word. The student's task is to select the best word and mark the appropriate bubble on the answer sheet. There were 26 items that were of more than average difficulty for New Mexico eighth graders, but the two that caused the greatest discrepancy were "installment"

which only 36% identified as "payment" (compared to 67% in the national sample) and "vary" which 34% defined correctly as meaning "alter" (compared to 57% nationally).

The Reading Comprehension subtest includes the processes of paraphrasing, interpretation, inference, determining relationships, and drawing conclusions. The items which appeared more difficult for New Mexico students than for the reference group dealt with determining the main thought of, or best title for, brief paragraphs that appeared in the test booklet; and only 42% could translate the year 1936, for example, into the correct century, as compared to 68% of the standardization sample. They performed better than the national reference group (75% vs 74%) on an item that asked them to infer location of a city from the language spoken there.

Faulty construction and confusing directions are reflected in the Language Mechanics subtest. It is difficult to determine the effect of these factors on the performance of New Mexico eighth graders. Nevertheless, it appears that correct use of the comma and colon are two problem areas in punctuation, and capitalization of words in a title is another area of concern. It should be noted, however, that again New Mexico students scored above the reference group (75% to 72%) on an item which called for correctly capitalizing the name of a month.

The next subtest, Language Expression, deals with correct usage and economy and clarity of expression. The task here is to select the

correct word from four possibilities, including "Best as it is" to fill the blanks in various sentences printed in the test booklet. The items that proved most difficult in this section were two that have tripped up more erudite individuals than junior high school students: the possessives "whose" and "its."

The last five items pertain to a poem, and the correct choices must fit the meter as well as the meaning. It is interesting to note here that on one of these questions only 22% of New Mexico students and 24% of the national sample answered correctly. This is the lowest score for the national group and the lowest but one for New Mexico. The correct response was only one word, and apparently most of the students did not believe that was a reasonable choice.

The spelling subtest, which calls for finding the misspelled word in a group of five which includes the choice "None," contained the item on which New Mexico eighth graders scored lowest, Number 29. Only 21% spotted an extra L on the end of the word "graceful." A less than impressive 41% of the national reference group correctly answered this item.

Looking at Arithmetic Computation, we find New Mexico students scoring above the standardization sample on three items dealing with decimals and money. On the other hand, according to this test, problems with common fractions, mixed fractions, polynomials, and exponents

are apparent. Specific item numbers and a brief description of the type of problem are included in Appendix E.

In the Arithmetic Concepts subtest we again find three items on which our state population performs better than the national sample; these items deal with place-value, simplifying an arithmetic explanation, and estimating the amount of liquid in a milliliter graduate.

The Arithmetic Applications subtest includes the cognitive processes of interpretation, analysis and organization. New Mexico student performance, as measured by grade equivalents, is lower on this subtest than any other. (See Appendix C.) These items require a fairly high degree of reading comprehension. The students appear to have particular difficulty in changing inches to feet, ounces to pounds, and pints to gallons. Computing square feet and percent is a real challenge, and once again common fractions prove a stumbling block.

The one area in which New Mexico eighth graders score at or above the National reference group is Study Skills. They do particularly well in the graphics portion which calls for interpreting tables, charts, graphs and maps. Processes involved include dictionary and library use, converting symbols, determining relationships, drawing conclusions, and educing extended meanings. One concept which caused some difficulty was "least gain" or "smallest difference."

In summary, it would appear from the results of this one test administration that New Mexico eighth graders experience difficulty in:

- Eliciting the main thought from their reading
- Using the comma, colon and capitalization correctly in written work
- Deciding when to use "its" and "whose"
- Solving problems involving common and mixed fractions
- Converting ounces and pounds, feet and inches, pints and quarts to their metric equivalents
- Computing percentages

It should be stressed that these findings will vary from district to district and even from building to building within district. Also, district objectives will determine the emphasis given to various skills and resultant concerns regarding indications provided by this testing.

II

Some of the eighth graders who took the CTBS in October 1973 were among the 13,600 fifth grade students who took Form Q, Level 2, of the same test in April, 1971. This is the first opportunity we have had to study the performance statewide of the same group of students over a period of time. Table 5 shows the percent right achieved on the various subtests and the difference between percent right at the fifth grade, seventh month, and eighth grade, first month.

TABLE 5

Grade 8 - October 1973 and Grade 5 - April 1971

A COMPARISON OF PERCENT RIGHT BY SUB-TESTS ADMINISTERED TO THE SAME POPULATION IN APRIL 1971 AND OCTOBER 1973

Subtest	CTBS Q2 4-71 Grade 5.7 % Right	Diff	CTBS Q3 10-73 Grade 8.1 % Right
1. Reading Vocabulary	62	3	59
2. Reading Comprehension	61	2	59
3. Language Mechanics	60	0	60
4. Language Expression	58	5	53
5. Language Spelling	68	10	58
6. Arithmetic Computation	70	10	60
7. Arithmetic Concepts	64	3	61
8. Arithmetic Applications	60	4	56
9. Study Skills - Reference	53	+8	61
10. Study Skills - Graphic	60	3	57

In only one area (Study Skills - Reference) do the eighth graders perform better than they did as fifth graders. This may be accounted for, at least in part, by the six-month differential in time of year when tests were administered. However, for those areas where there was considerable difference (Arithmetic Computation and Spelling) it might be advisable to consider other factors.

The Spelling subtest is an editing exercise in which the student is asked to select the misspelled word from a list of five which includes the choice "None." This differs from the usual spelling test in which words are read aloud and the student writes them down. It

is possible, also, that spelling is not stressed at the junior high level as it is at the elementary level.

With regard to the Arithmetic Computation subtest, it is particularly interesting to note that in fifth grade this group had difficulty with addition and subtraction of common fractions but was scored above the national reference group on multiplication of common fractions and apparently had no difficulty with division of common fractions, but in eighth grade it was considerably below the national reference group on all four processes. (See Appendix E).

Instruction in Study Skills apparently is stressed in the years between fifth and eighth grades since this is one of the strong points in the eighth grade item analysis. At the fifth grade this same group scored slightly below the national reference group. When there apparently is such a good grasp of these techniques at the eighth grade level, it is diffiuclt to account for the poor performance in related subject areas. It indicates again the need for a curriculum survey in the intervening years.

To assist the districts in deriving maximum benefit from all test data, the Evaluation Unit has prepared a publication entitled "Guidelines for Better Use of Test Results." In addition, post-test workshops each year acquaint teachers, test coordinators and administrators with the possibilities for improving instructional programs. Other units

of the State Department of Education use this information in various ways to assist the districts in making necessary curriculum modifications, all for the purpose of providing the best education possible for all New Mexico Students.

ACT REPORT

February 1974

Each fall the American College Testing Program Research Services prepares a High School Profile Report for all students within the State who completed the ACT examination during the first four national test dates of the preceding school year. The 1973 Profile contains information on 8,701 boys and girls who participated in this optional program in the school year 1972-73. This number represents approximately 42% of the 40-day ADM of 18,489 twelfth grade students reported in 1972-73, a decrease from 45% the previous year. Of those students taking the test, 90% were seniors, 7% were juniors, and 3% were classified as "Other." The number of girls participating in this assessment has increased over the past six years until they now constitute a majority of those tested.

The ACT Assessment consists of two sections in which different types of information are collected. One section includes the four measures of academic ability. The other, called the Student Profile Section, asks for information about additional student characteristics that appear to have a bearing on success in college.

A description of the ACT is found in Assessing Students on the Way to College, Volume Two, Page 3:

Each of the ACT Tests is oriented toward one of the four primary subject-matter areas of college and high school instruction. Thus, the English test is designed to measure the student's understanding and use of the basic elements in correct and effective writing; the mathematics test, the student's mathematical reasoning ability; the social studies test, evaluative reasoning and problem-solving skills required in the social studies; and the natural sciences test, the critical reasoning and problem-solving skills required in the natural sciences. The average of a student's scores on these four tests is his ACT Composite Score, which may be considered an estimate of his overall academic ability. ACT scores are reported on a standard score scale that ranges from 1 to 36. The standard error of measurements is about 1.0 for the ACT Composite and about 2.0 for each of the four ACT tests.

In the Student Profile section, among other information, students give the last grade received prior to their senior year in the areas measured by the test, i.e., English, mathematics, social studies, and natural sciences. The average of these four grades gives a high school average (HSA) which provides another measure of academic ability.

Table 1 gives New Mexico means for 1967-68 to 1972-73 and the most recent National norms based on those students tested from 1970 through 1973. Graph A displays New Mexico scores attained from 1970 through 1973 and compares them with National results. (See Table 1 and Graph A on the following pages.)

Looking at total scores alone, it appears that the downward trend noted in previous years has been halted or reversed in all areas but Social Studies for New Mexico students, while at the National level scores have dropped in everything but Natural Sciences. (See Table 2)

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TABLE 1

A C T MEANS -- NEW MEXICO

YEAR	N	ENGLISH BOY	ENGLISH GIRL	ENGLISH TOTAL	MATHEMATICS BOY	MATHEMATICS GIRL	MATHEMATICS TOTAL	SOCIAL STUDIES BOY	SOCIAL STUDIES GIRL	SOCIAL STUDIES TOTAL	NATURAL SCIENCES BOY	NATURAL SCIENCES GIRL	NATURAL SCIENCES TOTAL	COMPOSITE BOY	COMPOSITE GIRL	COMPOSITE TOTAL
1967-68	8,239	17.5	19.5	18.5	19.6	17.0	18.4	19.8	18.8	19.3	21.5	19.9	20.3	19.7	18.7	19.2
	B - 4,348															
	G - 3,891															
1968-69	7,843	17.9	19.5	18.7	20.2	18.0	19.1	20.2	18.9	19.6	21.7	19.2	20.5	20.0	19.1	19.5
	B - 3,947															
	G - 3,896															
1969-70	8,771	17.2	18.8	18.0	20.4	18.0	19.2	19.7	18.1	18.9	21.5	19.7	20.6	19.8	18.8	19.3
	B - 4,403															
	G - 4,368															
1970-71	9,091	16.4	18.2	17.4	19.3	17.0	18.1	18.2	17.4	17.8	21.2	19.3	20.3	18.9	18.1	18.5
	B - 4,478															
	G - 4,613															
1971-72	9,107	16.3	17.9	17.1	19.3	16.7	18.0	18.2	17.2	17.7	21.3	19.1	20.2	18.9	17.9	18.4
	B - 4,501															
	G - 4,606															
1972-73	8,701	16.8	17.7	17.2	19.5	16.5	18.0	18.1	16.2	17.1	21.6	19.1	20.3	19.1	17.5	18.3
	B - 4,151															
	G - 4,550															
							NATIONAL NORMS									
1970-73	2,647,873	16.7	18.6	17.7	19.7	17.7	18.7	18.7	17.9	18.3	21.2	19.5	20.4	19.2	18.6	18.9
	B - 1,321,470															
	G - 1,326,403															

GRAPH A

A C T MEAN SCORES - NEW MEXICO HIGH SCHOOLS

1970-1973

Table 2

	1971-72	1972-73	Difference	1967-70	1970-73	Difference
	New Mexico			National		
English	17.1	17.2	+.1	18.2	17.7	-.5
Mathematics	18.0	18.0		19.0	18.7	-.3
Social Studies	17.7	17.1	-.6	19.4	18.3	-1.1
Natural Sciences	20.2	20.3	+.1	20.1	20.4	+.3
Composite	18.4	18.3	-.1	19.3	18.9	-.4

This corresponds to the finding that scores on the Scholastic Aptitude Test, another widely used college entrance test, are dropping nationwide. This phenomenon was a topic of discussion at a conference of directors of state testing programs held in Princeton, New Jersey, on November 4 and 5, 1973. It was reported that the Minnesota College Testing Program mean scores had experienced an increase until approximately 1961-62 where they plateaued until about 1969-70 when the mean scores began dropping approximately 1/2 raw score point annually.* In addition, it has been noted that National scores on the reading and math portions of the Iowa Tests of Basic Skills are showing "substantial drops," particularly in the higher grades.**

* Minutes, Conference of Directors of State Testing Programs, ETS, New Jersey, November 4, 5, 1973.

**Ibid.

Some possible reasons for this were suggested which might be extrapolated to performance on the ACT:

Changes in the population tested - more minority group and low socio-economic status students participating; increased urbanization.

Changes in attitude toward testing - college entrance becoming less important to the more academically talented students who may either not participate in the test or may not be motivated to do their best.

Changes in curriculum - decreased emphasis on basic skills and more on life adjustment courses and the affective domain, which are not measured by the tests under discussion.

Changes in teacher attitude - increased resentment on the part of some teachers and activism directed toward changing what is perceived as their second-class status and lack of financial incentives to do their best in teaching and motivating their students.

Whatever the reasons for declining performance, an examination of Table 1 indicates that the lower scores attained by New Mexico girls who took the ACT in 1972-73, particulary in Social Studies, are the primary reason for New Mexico's composite score decrease, since boys' scores show an upward trend in all areas except social studies, and

that only decreases .1 of a standard score. Graph B illustrates the performance of New Mexico Students in the 1972-73 assessment period and that of the National population over a three-year span.

In the section of the Student Profile in which high school grades are reported, girls indicate that they receive nigher grades than boys in all four areas and the highest grades of all in Social Studies. See Table 3.

Table 3

Distribution of High School Grades* 1972-73

	English	Math	Social Science	Natural Sciences
Boys	2.79	2.52	3.04	2.76
Girls	3.08	2.53	3.08	2.85
Total	2.94	2.52	3.06	2.81

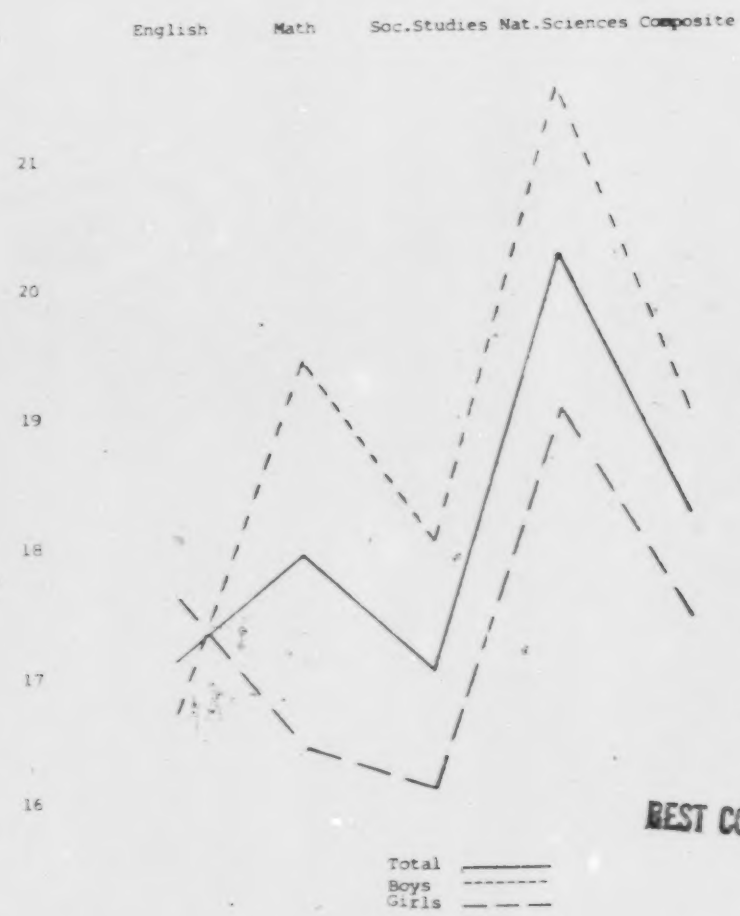
*4.00 point system.

It would appear from these two factors, i.e., higher grades in high school and lower ACT scores, that New Mexico college-bound girls are not being prepared adequately for the competition they will face in college. The possibility of item bias has been raised and the Research and Development Division of the American College Testing Program plans to investigate this contingency, but it is hardly likely that this could account for such a large difference in scores attained by boys and girls. Some other possible factors might be variations in curriculum, teacher preparation, grading practices, and appropriateness of test items for New Mexico high schools, especially in the area of social studies.

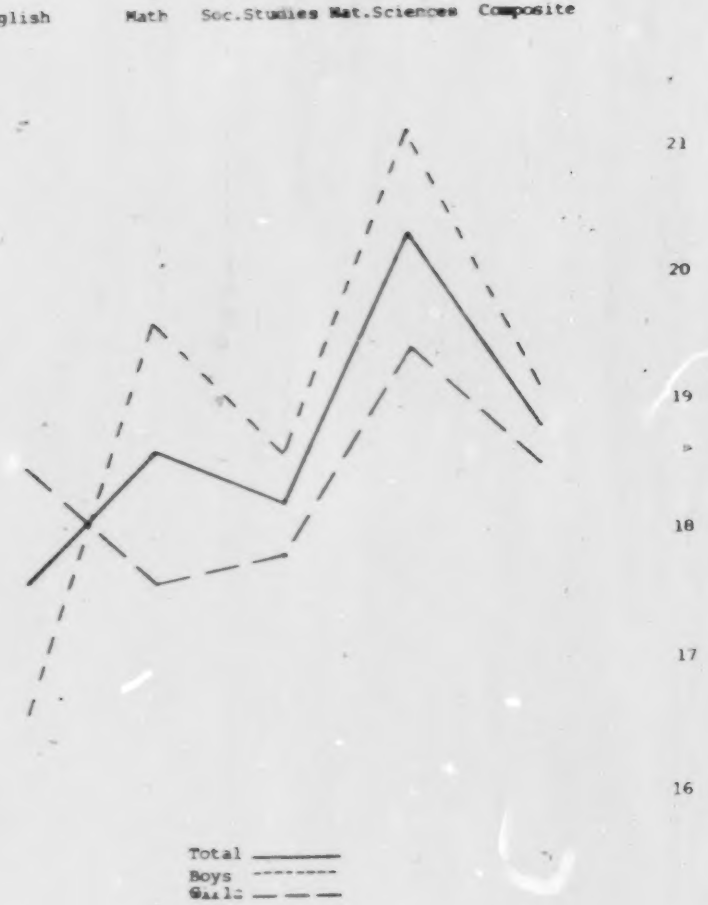
GRAPH B

ACT SCORES

New Mexico 1972-73



National 1970-73



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In a paper prepared for a 1972 invitational conference on testing problems, Eleanor E. Maccoby and Carol Nagy Jacklin, of Stanford University, stated that, "[regarding] the performance of the two sexes on measures of total or composite abilities, such as I. Q. tests: It is still a reliable generalization that there are no sex differences on these tests."*

They go on to reaffirm the conclusion that boys are better at certain kinds of items and girls at others, so the particular mix of items can determine the outcome. Girls' verbal superiority should give them an advantage in a test such as the ACT, which relies heavily on reading comprehension in all subtests, but this is not the case in New Mexico. Their closing paragraph gives an indication of the difficulty in drawing any firm conclusions:

> We feel we should apologize for having given you a recital of what we do not know about the origins of intellectual sex differences. We would like to have been able to be more positive. But perhaps divesting ourselves of some misconceptions may not be a bad way to begin the complex task of understanding the factors that underlie sex differences in intellectual functioning.**

New Mexico students, boys and girls, do not fare too well when their scores are compared with other states in this region. In a longitudinal study conducted by Dr. William Huber, Dean, University College, University of New Mexico, a comparison of the performance of UNM freshmen from 1966 through 1972 with National and Regional norms revealed that:

* Assessment In A Pluralistic Society, Proceedings of the 1972 Invitational Conference on Testing Problems, ETS, Princeton, N. J. 1973, "Sex Differences in Intellectual Functioning," pp. 37-55.

** Ibid. p. 50.

> It is readily observable that performance on all parts of the ACT tests of UNM freshman classes since 1967 has declined. The decline has been substantial, to the point that in 1972 the UNM freshman class is equal to or below national norms for all colleges and universities using the ACT service. Furthermore, national norms have tended to remain stable and the regional Group IV norms have remained about the same in 1971 and 1972. UNM freshmen equaled or exceeded regional and national Group IV norms in 1966 and 1967. In 1972 the UNM freshman class has fallen considerably below these Group IV norms.*

Another indication of New Mexico's declining performance is found in comparing scores of resident and non-resident students.

> The change upward in the proportion of non-resident students has not contributed to the previously reported decline of performance on the ACT tests. In fact it has had the reverse effect in that the non-residents have averaged 21.6 and higher on the ACT while overall UNM norms were dropping from 21.9 to a current low of 19.7. If the non-residents were subtracted from the freshman population, the UNM norms would be lower than the current 19.7.**

One possible explanation that has been proposed to account for New Mexico's poor showing is that more students are taking the test each year, implying that less able students are participating and depressing the scores. However, 406 fewer students took the test in 1972-73 than in 1971-72, with no improvement in scores, and, according to the high school grade averages reported in Table 3, they were in the upper half of their class. Grades, however, are not necessarily indicative of course content.

* "The University of New Mexico Freshman: A Longitudinal Study of Selected Characteristics 1966-1972," William H. Huber, Dean, University College, p. 17.

**Ibid. p. 24.

In summary, New Mexico's total composite score on the 1972-73 administration of the ACT has continued the downward trend which began in 1969-70. The decline for the most recent year can be attributed almost entirely to the low scores attained by New Mexico girls, particularly in social studies, since boys' scores generally have improved. Actual high school course grades reported by these students in the subject areas tested are higher in social studies than any other subject. The latest national norms follow somewhat the same pattern as New Mexico, though at a higher level. Course content and grading practices should be carefully reviewed, since it appears on the basis of the ACT that New Mexico students may be handicapped in academic participation at the collegiate level by inadequate preparation in secondary school.

APPENDIX A

TESTING SCHEDULE - 1969-1974

Grade Level	Instrument (s)	Years Administered 1969-70	1970-71	1971-72	1972-73	1973-74
1	Otis-Lennon Mental Ability Test			X	X	X
5	Comprehensive Tests of Basic Skills					
	April (Sample)	X	X			
	October		X	X	X	X
	California Test of Mental Maturity					
	April (Sample	X	X			
	Short Form Test of Academic Aptitude					
	October			X	X	X
8	Comprehensive Tests of Basic Skills					
	April (Sample	X	X			
	October		X	X	X	X
	California Test of Mental Maturity					
	April (Sample)	X	X			
	Short Form Test of Academic Aptitude					
	October			X	X	X

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CTBS/SFTAA - GRADE 5 - OCTOBER 1973,72,71

APPENDIX B

		Reading			Language				Arithmetic				Btry	Study Skills			SFTAA		
TOTAL	N	Voc	Comp	Total	Mech	Exp	Spl	Total	Comp	Con	Apl	Total	Total	Ref	Grph	Total	L	NL	Total
1973	23,850 (RS)	4.5	4.4	4.5	4.4	4.3	4.1	4.3	4.5	4.5	4.3	4.5	4.4	4.6	4.8	4.7	94.9	96.3	95.1
1973	23,850 (M)	4.7	4.9	4.8	4.6	4.8	4.6	4.6	4.5	4.7	4.6	4.6	4.6	4.7	4.9	4.8			
1972	23,960	4.7	4.7	4.7	4.6	4.7	4.6	4.6	4.6	4.7	4.5	4.6	4.6	4.7	4.9	4.8	95.9	96.9	96.0
1971 (Oct)	24,559	4.9	5.1	4.9	4.8	5.1	4.8	4.8	4.7	4.8	4.7	4.7	4.7	4.9	5.2	5.0	96	97	96
1971 (April)	13,623	5.4	5.8	5.6	6.0	5.8	5.9	5.8	5.6	5.6	5.5	5.6	5.5	5.7	6.0	5.8	101.2	CTMM 102.6	101.9
ANGLO N																			
1973	10,518	5.1	5.1	5.1	4.9	5.3	4.6	4.9	4.7	5.1	5.0	4.8	4.9	5.0	5.2	5.3	100.9	101.7	101.5
1972	10,867	5.6	5.9	5.7	5.5	6.0	5.2	5.4	4.9	5.5	5.3	5.1	5.3	5.6	5.9	5.7	NA	NA	NA
1971	11,987	5.6	6.0	5.7	5.4	6.0	5.3	5.4	5.0	5.4	5.3	5.2	5.3	5.5	5.9	5.7	102	103	103
SPANISH N																			
1973	9,946	4.0	4.0	4.1	4.2	4.0	3.8	3.9	4 3	4.2	4.1	4.2	4.1	4.3	4.4	4.3	90.2	92.3	90.2
1972	9,996	4.2	4.3	4.3	4.4	4.3	4.4	4.3	4.4	4.3	4.2	4.3	4.3	4.3	4.5	4.4	NA	NA	NA
1971	10,178	4.2	4.4	4.3	4.3	4.3	4.4	4.3	4.5	4.3	4.2	4.4	4.3	4.3	4.5	4.4	91	92	92
INDIAN N																			
1973	1,883	3.6	3.6	3.6	3.6	3.3	3.6	3.6	4.0	3.6	3.8	3.8	3.7	3.9	4.0	3.9	85.6	87.8	85.1
1972	1,953	3.6	3.8	3.6	4.0	3.6	4.0	3.8	4.1	3.7	3.6	3.9	3.8	3.8	4.0	3.8	NA	NA	NA
1971	1,691	3.6	3.8	3.7	4.0	3.6	4.3	3.9	4.2	3.7	3.6	3.9	3.8	3.8	4.0	3.9	85	88	85

NOTE: 1973 scores in Raw Score Grade Equvalents (RS) and Mean Grade Equivalents (M)
1972 and 1971 scores in Mean Grade Equivalents only

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APPENDIX C

CTBS/SFTAA - GRADE 8 - OCTOBER 1973,72,71

		Reading			Language				Arithmetic				Btry	Study Skills			SFTAA		
TOTAL	N	Voc	Comp	Total	Mech	Exp	Spl	Total	Comp	Con	Apl	Total	Total	Ref	Grph	Total	L	NL	Total
1973	24,382 (RS)	7.3	6.8	7.1	6.5	7.0	7.1	6.9	7.0	7.2	6.6	7.0	6.9	6.7	7.3	7.1	95.5	98.7	96.8
1973	(M)	7.4	7.3	7.4	7.4	7.3	7.4	7.2	7.2	7.3	7.0	7.2	7.1	7.5	7.7	7.6			
1972	23,549	7.4	7.3	7.3	7.1	7.1	7.3	7.2	7.2	7.5	6.9	7.3	7.2	7.2	7.5	7.4	95.7	98.8	96.9
1971	22,769	7.4	7.5	7.4	7.5	7.4	7.6	7.4	7.1	7.4	7.1	7.2	7.2	7.5	7.8	7.7	96	99	97
ANGLO																			
1973	10,805	8.2	8.0	8.3	7.5	8.0	7.4	7.6	7.8	8.1	7.5	7.8	7.8	8.2	8.7	8.2	101.4	103.6	102.6
1972	10,636	8.6	8.8	8.7	8.3	8.7	8.2	8.3	8.1	8.4	8.1	8.1	8.2	8.6	9.0	8.8	NA	NA	NA
1971	11,363	8.6	8.7	8.6	8.3	8.6	8.2	8.3	7.9	8.4	8.1	8.0	8.2	8.5	9.0	8.8	102	104	103
SPANISH																			
1973	10,019	6.5	5.9	6.3	6.1	6.0	6.5	6.1	6.4	6.6	6.2	6.4	6.3	6.2	6.5	6.5	90.4	94.5	91.7
1972	9,061	6.4	6.4	6.4	6.8	6.3	7.1	6.6	6.7	6.7	6.3	6.6	6.4	6.8	6.8	6.8	NA	NA	NA
1971	9,088	6.3	6.4	6.3	6.7	6.2	7.0	6.6	6.5	6.6	6.2	6.4	6.3	6.6	6.7	6.7	90	94	91
INDIAN																			
1973	1,794	5.6	5.1	5.4	5.7	5.0	6.5	5.7	6.0	5.9	5.4	5.8	5.6	5.8	6.2	5.9	84.4	90.1	86.1
1972	1,465	5.3	5.3	5.3	6.2	5.3	6.6	5.9	5.9	5.7	5.3	5.7	5.5	5.8	6.2	6.0	NA	NA	NA
1971	1,454	5.2	5.2	5.2	6.2	5.2	6.8	6.0	5.9	5.6	5.3	5.6	5.5	5.8	6.2	6.0	83	90	85

NOTE: 1973 scores in Raw Score Grade Equivalents (RS) and Mean Grade Quivalents (M)
1972 and 1971 scores in Mean Grade Equivalents only

APPENDIX D

GRADE 5 - ITEM ANALYSIS

OCTOBER 1973

N = 24,396		5.1 STATE	5.6 NATIONAL	DIFFERENCE
		Percent Right*		
Test 1 (40 items)	Reading Vocabulary Best meaning - four choices	55	68	13
28 items	10% or more below National Reference Group			
Test 2 (45 items)	Reading Comprehension Best Answer - four choices	54	65	11
Literal Meaning		52	62	10
17	from text	52	65	13
33	" "	76	88	12
40	" "	46	56	10
44	" "	29	39	10
Simple Rewording		59	75	16
7	implied in text	63	83	20
9	" " "	57	75	18
15	" " "	70	82	12
19	" " "	47	64	17
27	" " "	59	75	16
29	" " "	60	72	12
Paraphrasing		61	74	13
10	implied in text	54	72	18
16	" " "	52	69	17
26	" " "	62	73	11
30	" " "	56	71	15

* State figures derived from administration of Comprehensive Tests of Basic Skills (CTBS) Form Q, Level 2, in October 1973. National Reference Group (NRG) tested in March 1968.

Test 2 Cont'd		STATE	NATIONAL	DIFFERENCE
Interpretation		50	60	10
Main Idea		54	62	8
5	of a poem	63	76	13
13	of a letter	70	81	11
22	story of king's daughter, Shining Moon, and horses	64*	56	+8
31	best title	45	55	10
34	description of process	49	60	11
37	best title	40	54	14
Relationships		44	55	11
2	higher than	74	86	12
4	rhyming words	65	78	13
32	organization of facts	34	47	13
36	two ways of doing something	27	37	10
42	appearance and reality	34	46	12
Conclusions		44	54	10
28	from information in text	55	66	11
38	" " " "	45	61	16
43	" " " "	44	55	11
Inference		55	66	11
1	from information in text	69	79	10
23	" " " "	53	68	15
24	" " " "	74	84	10
39	" " " "	41	56	15

*Above National Reference Group

Test 2 Cont'd		STATE	NATIONAL	DIFFERENCE
Analysis		61	73	12
14	from information in text	66	76	10
21	" " " "	63	73	10
35	" " " "	56	70	14
Test 3 (25 items)	Language Mechanics (confusing directions)	48	64	16
Punctuation		58	71	13
1	comma between city and state	78	89	11
2	comma after salutation	67	77	10
3	period at end of sentence	63	77	14
4	close quotation	53	68	15
5	question mark	61	77	16
6	comma after complimentary close	72	84	12
7	before dependent clause	66	78	12
8	period at end of sentence	62	79	17
9	period after abbreviation	30	46	16
10	comma before quote	52	66	14
12	comma before independent clause	51	61	10
13	question mark	51	69	18
Capitalization*		36	56	20
14	words in title	53	69	16
15	middle initial	39	64	25

Test 3 cont'd		STATE	NATIONAL	DIFFERENCE
16	name of country	42	63	21
17	name of month	40	60	20
18	no mistakes	45	69	24
19	first word of quote	21	27	6
20	words in title	23	38	15
21	initials	43	67	24
22	proper name	33	51	18
23	name of month	35	56	21
24	quote	34	52	18
25	proper name	28	50	22

* 10 to 35% omitted each item in this subtest which is the last section, possibly indicating lack of time, rather than lack of knowledge.

Test 4 (30 items)	Language Expression	51	62	11
	Best word or phrase			
Correct Usage		57	68	11
28	they're (they are)	41	58	17
30	your	64	77	13
31	"a" "an"	47	65	18
33	"themselves"	57	68	11
34	"least"	27	41	14
Economy/clarity		34	43	9
	A choice of phrases including "Best as it is"			

Test 3 cont'd		STATE	NATIONAL	DIFFERENCE
Word Choice		53	65	12
	Words which fit best in each sentence			
Test 5 (30 items)	Spelling	54	69	15
	25 items 10% or more below below National Reference Group			
Test 6 (48 items)	Arithmetic Computation	55	73	18
Addition		64	77	13
17	4 digit, whole numbers	72	82	10
18	decimals, money	78	90	12
19	decimals, tens	64	74	10
20	decimals, hundreds	62	76	14
33	common fractions	31	61	30
34	" "	18	39	18
35	mixed fractions	53	76	23
36	" "	31	47	16
Subtraction		59	77	18
7	2 digit whole numbers, regrouping	66	83	17
8	3 digit, whole numbers, regrouping	66	80	14
21	4 digit, whole numbers, regrouping	64	80	16
22	4 digit whole numbers, regrouping	50	72	22

Test 6 Cont'd		STATE	NATIONAL	DIFFERENCE
23	decimals, money	74	87	13
24	decimals, money, regrouping	47	68	21
37	decimals, tens, regrouping	35	51	16
38	common fractions	51	77	26
39	" "	31	63	32
40	mixed fractions	47	69	22
Multiplication		51	70	19
9	1 digit x 3 digits	83	94	11
10	" " x 3 digits	73	88	15
11	" " x 2, regrouping	79	91	12
12	" " x 2, regrouping	73	88	15
25	" " x 3, regrouping	57	81	24
26	" " x 4, regrouping	51	73	22
27	" " x 3 regrouping,decimal	48	75	27
28	2 digits x 2	39	69	30
41	" " x 4, decimal	32	57	25
43	common fractions	14	31	17
44	" "	38	58	20
Division		47	67	20
13	1 digit into 2	75	92	17
14	" " " "	77	89	12
15	" " " "	72	89	17
16	" " " 3	50	78	28

Test 6 Cont'd		STATE	NATIONAL	DIFFERENCE
29	1 digit into 3	45	73	28
30	" " " 5	43	65	22
31	" " " 4, decimal	46	78	32
32	" " " 3	50	78	28
45	3 " " 4, decimal	30	47	17
47	common fractions	29	51	22
Test 7 (30 items)	Arithmetic Concepts	54	68	14
Recognition		54	66	12
2	place values	45	61	16
9	greater than	72	85	13
14	place values, decimal	62	76	14
20	square inches measure what?	33	46	13
27	place values	42	53	11
Translation		58	70	12
1	words to figures	72	84	12
29	geometric terms	42	56	14
30	" "	38	52	14
Equations		67	78	11
13	value of "n"	57	69	12
15	completion	55	68	13

Test 7 Cont'd		STATE	NATIONAL	DIFFERENCE
Comparisons		52	69	17
4	greatest divisor	26	53	27
8	longest distance	70	80	10
17	greatest value	26	55	29
23	shorter length	56	70	14
Other Relationships		54	72	18
3	the week after	53	69	16
18	map scale	57	75	18
19	missing numeral in sequence	44	58	14
25	fraction of area	48	74	26
26	" " "	53	81	28
Analysis		45	57	12
16	finding average	62	78	16
22	time - hours after	42	52	10
24	volume	35	46	11
28	smallest value	21	37	16
Test 8 (20 items)	Arithmetic Applications	47	62	15
Selecting Method		38	56	16
37	finding cost	46	62	16
40	width of room	37	50	13
42	number of windows washed	51	77	26
43	" " tickets purchased	50	69	19

Test 8 Cont'd		STATE	NATIONAL	DIFFERENCE
47	finding fraction of total	30	47	17
49	average height	23	40	17
50	converting feet to inches	32	48	16
Solving Problem		47	62	15
31	finding unknown	61	80	19
32	hours to minutes	78	88	10
34	division	65	80	15
35	2 processes	61	72	11
36	cents to decimal	56	75	19
39	determine process	54	70	16
46	fractions	42	62	20
Organization		44	55	11
38	finding unknown	47	61	14
41	temperature	48	59	11
45	finding unknown	30	51	21
Test 9 (20 items)	Study Skills - Reference	45	58	13
Parts of Books		45	59	14
Dictionary Use		45	60	15
Library Use		45	56	11

		STATE	NATIONAL	DIFFERENCE
Test 10 (30 items)	Study Skills - Graphic	52	64	12
Translation		56	66	10
Relationships		54	68	14
Conclusions		50	63	13
Analysis		45	58	13

APPENDIX E

GRADE 8 - ITEM ANALYSIS

OCTOBER 1973

N = 24,782		8.1 STATE	8.6 NATIONAL	DIFFERENCE
Test 1 (40 items)	Reading Vocabulary Best meaning - four choices	59	69	10
26 items	10% or more below the National Reference Group			
Test 2 (45 items)	Reading Comprehension	59	68	9
	Simple Rewording - Best Answer four choices	64	72	8
Paraphrasing		61	71	10
5	French phrase - meaning?	31	44	13
12	What century?	42	68	26
24	"tall tale"	67	81	14
36	boustrophedon - given in test	51	61	10
42	poem - poor choice	68	82	14
Interpretation		61	71	10
20	Best Title	31	47	16
26	Main thought	36	55	19
34	Best title	48	68	20
38	Main thought	51	63	12
45	Best title	40	56	16

Test 2 Cont'd		STATE	NATIONAL	DIFFERENCE
Relationships		56	63	7
40	Inference	43	56	13
41	Similarity of sound - poem	60	70	10
Conclusions		59	69	10
16	Inference	57	70	13
17	Inference	52	69	17
33	Inference	48	59	11
Inferences		59	69	10
1	Turkish Language spoken Izmir in Turkey	75*	74	+1
22	age of tree	63	77	14
23	Attitude of author	53	64	11
30	Car components at no extra cost	37	48	11
32	"Plain Jane" - car	62	78	16
Extended Meaning		60	68	8
25	What a chronometer measures	55	70	15
Test 3 (25 items)	Language Mechanics	60	68	8
Punctuation		66	74	8
1	Use of colon after salutation	72	83	11
3	Incorrect use of comma	55	70	15
5	Use of colon before list of items	51	66	15

*Above National Reference Group

Test 3 Cont'd		STATE	NATIONAL	DIFFERENCE
Punctuation Cont'd				
6	Use of comma in series	64	75	11
11	Incorrect use of comma	62	75	13
Capitalization		54	61	7
16	Beginning quote	32	43	11
20	Name of month	75*	72	+3
22	Words in a title	44	56	12
23	Words in a title	54	66	12
24	Words in a title	31	53	22
25	Name of a species	47	57	10
Test 4 (30 items)	Language Expression	53	64	11
	Correct Usage - missing words	61	70	9
31	Present perfect	38	54	17
32	Use of "whose" "who's"	44	66	22
33	Use of "its" (possessive)	35	58	23
Economy/Clarity	Choose best wording from four possibilities including "Best as it is." Last five questions pertain to a poem and must fit meter as well as meaning.	42	52	10
Interpretation - Word Choice - 10 items	Best word. Four choices.	57	70	13

*Above National Reference Group

		STATE	NATIONAL	DIFFERENCE
Test 5 (30 items)	Spelling	58	70	12
5 items	10% or more below National Reference Group			
Test 6 (48 items)	Arithmetic Computation	60	73	13
Addition		63	76	13
1	Money - decimal	95*	92	+3
2	4 places	91	91	0
17	Mixed fractions	45	71	26
18	fractions - common & decimal	66	77	11
19	" - common	53	73	20
20	" - mixed	57	75	18
33	Exponent & addition	47	70	23
34	Fractions - mixed	65	78	13
35	Fractions - mixed	51	72	21
36	Fractions - mixed	46	61	15
Subtraction		57	70	13
6	Decimals - two places	86*	82	+4
8	" - to four places	41	54	13
21	Fractions - common	58	78	20
22	" - mixed & decimal	44	66	22
23	" - common	63	76	13
24	" - mixed	64	78	14
37	Involving exponents	42	62	20

* Above National Reference Group

Test 6 Cont'd		STATE	NATIONAL	DIFFERENCE
Subtraction Cont'd				
38	Fractions - mixed	38	55	17
39	" whole no. & fraction	34	57	23
40	" - mixed	62	75	13
Multiplication		61	73	12
27	whole no. & fraction	52	74	22
28	2 fractions - commom	48	72	24
41	" " "	49	66	17
42	" " - mixed	43	60	17
43	Involving trinomials unknowns	47	64	17
44	Mixed no. & common fraction	38	55	17
Division		61	73	12
16	Common fractions	67	78	11
32	" "	44	61	15
45	Whole no. & common fraction	38	54	16
46	" " " " "	38	54	16
47	Mixed " " " "	45	65	20
48	" " " " "	46	69	23
	Two steps			
Test 7 (30 items)	Arithmetic Concepts	61	71	10
Recognition		61	73	12
2	Expanded numeral form	65	75	10
5	Geometry	63	80	17

		STATE	NATIONAL	DIFFERENCE
Test 7 Cont'd				
17	Division	62	72	10
21	Place values	48	66	18
24	Geometry	47	61	14
Translation		57	69	12
1	Place value - money	91*	89	+2
19	Exponents	59	73	14
23	Changing decimal to common fraction	48	69	21
25	Changing % to decimal	42	63	21
27	Changing words to figures	38	57	19
28	Geometry (diameter of circle)	61	73	12
30	Identifying right angle	52	62	10
Equations		72	77	5
8	Simplifying Arithmetic explanation	77*	76	+1
Comparisons		59	73	14
13	Measurement example	69	79	10
20	Approximation of measure	50	67	17
22	Comparing common fraction & %	42	64	22
Organization		61	68	7
7	From inch to cm.	59	69	10
11	" meter to yd.	57	72	15

* Above National Reference Group

		STATE	NATIONAL	DIFFERENCE
Test 7 Cont'd				
Organization Cont'd				
12	Estimate amount in mililiter graduate	68*	64	+4
15	% of geometric figure not shaded	60	72	12
26	Formula for N of shaded blocks	42	57	15
Test 8 (20 items)	Arithmetic Applications	56	71	15
Interpretation		56	71	15
	Selecting method	55	70	15
43	Two operations	58	72	14
45	Find average of 3 numbers	50	67	17
50	Change inches to feet	33	54	21
Solving problem		61	74	13
31	Fractions	84*	82	+2
42	Square feet	40	72	32
48	Fractions	40	64	22
Other relationships		52	69	17
33	Ratio	54	71	17
35	Ounces & pounds	36	61	25
38	Feet and yards	52	68	16
39	Gallons and pints	34	54	20
40	Map scale	65	79	14

* Above National Reference Group

		STATE	NATIONAL	DIFFERENCE
Test 8 Cont'd				
Analysis - Organization		55	70	15
41	Monthly payments vs lump sum	68	78	10
44	Fractions	55	73	18
47	Averages	56	69	13
49	Per cent	41	59	18
Test 9 (20 items)	Study Skills - Reference	61	66	5
Dictionary Use		58	64	6
16	Parts of speech	54	64	10
18	Definitions	56	67	11
Library Use		61	67	6
7	Alphabetizing	57	69	12
10	"	71*	70	+1
Test 10 (30 items)	Study Skills - Graphic	57*	54	+3
Converting Symbols		57*	51	+6
21	Map & Legend	79*	63	+16
50	Interpret bar graph	50*	47	+3
Relationships		60*	56	+4
23	Interpret map-agri regions	83*	76	+7
24	" " " "	75*	73	+2

* Above National Reference Group

		STATE	NATIONAL	DIFFERENCE
Test 10 Cont'd				
Relationships				
26	Interpret map - topo	72*	65	+7
35	" Diagram - profile	48*	47	+1
36	Interpret graph - temp.	44*	39	+5
39	" " "	52*	49	+3
40	" " "	62*	56	+6
47	" bar " - % of students	64*	59	+5
Conclusions		54*	52	+2
22	Using map	75*	67	+8
29	" "	52*	44	+8
34	" Profile diagram	57*	52	+5
41	" table	70*	67	+3
42	Table - which country gained least	28	32	4
43	Table - smallest difference in production	33	40	7
44	Table - most gain	67*	64	+3
49	Graph	58*	50	+3
Extended Meaning		56*	55	+1
31	How high above sea level is tallest peak?	85*	75	+10

* Above National Reference Group

APPENDIX F

GRADE 5 - ITEM ANALYSIS

APRIL 1971

CTBS FORM Q LEVEL 2

N = 14,136		5.7 STATE	5.6 NATIONAL	DIFFERENCE
Test 1 (40 items)	Reading Vocabulary Best meaning - four choices	62	67	5
22 items	5% or more below National Reference Group			
Test 2 (45 items)	Reading Comprehension	61	65	4
Literal Meaning		59	62	3
17	from text	59	65	6
Simple Rewording		69	75	6
7	from text	75	83	8
9	" "	67	75	8
19	" "	58	64	6
27	" "	66	75	9
Paraphrasing		68	74	6
8	from text	82	87	5
10	" "	66	72	6
16	" "	58	69	11
30	" "	64	71	7
Main idea		59	61	2
5	of a poem	70	76	6
11	best title	65	70	5

		5.7 STATE	5.6 NATIONAL	DIFFERENCE
Test 2 Cont'd				
Main Idea Cont'd				
13	of a letter	74	81	7
22	story dealing with king's daughter named Shining Moon, and horse	64*	56	+8
Relationships		51	55	4
2	deriving meaning from poem	80	86	6
4	rhyming words	71	78	7
36	two ways of doing something	32	37	5
Conclusions		50	54	4
28	From information in text	60	66	6
38	" " " "	53	61	8
Inferences		61	66	5
23	from text	60	68	8
39	" "	50	56	6
Analysis		68	72	4
6	from information in text	65	73	8
14	" " " "	71	76	5
35	" " " "	64	70	6
Test 3 (25 items)	Language Mechanics-confusing directions.	60	63	3
Punctuation		67	71	4
3	period at end of sentence	71	77	6
5	question mark	70	77	7

* Above National Reference Group

		5.7 STATE	5.6 NATIONAL	DIFFERENCE
Test 3 Cont'd				
Punctuation Cont'd				
8	period at end of sentence	72	79	7
9	period after abbreviation	37	46	9
13	question mark	61	69	8
Capitalization		54	55	1
15	middle initial	55	64	9
17	name of month	54	60	6
18	no mistakes	64	69	5
19	first word of quote	31*	27	+4
Test 4 (30 items)	Language Expression Best word or phrase	58	59	1
Correct Usage		65	68	3
28	possessive "their"	53	58	5
31	use of "a" and "an"	57	65	8
34	use of "less" "least"	36	41	5
35	use of "who" and "whom"	63	68	5
Economy/Clarity	A choice of phrases including "Best as it is"	42	43	1
Word Choice	Words which fit best in each sentence	59	64	5
Test 5 (30 items	Language - spelling	68	69	1
5 items	5% or more below National Reference Group			

* Above National Reference Group

		5.7 STATE	5.6 NATIONAL	DIFFERENCE
Test 6 (48 items)	Arithmetic Computation	70	73	3
Addition		73	76	3
33	common fractions	44	61	17
34	" "	33	39	6
35	mixed fractions	68	76	8
Subtraction		73	76	3
22	four-digit numbers	67	72	5
38	common fractions	69	77	8
39	" "	56	63	7
Multiplication		69	70	1
42	common fractions	40*	35	+5
43	whole number and fraction	24	31	7
44	common fractions	64*	58	+6
Division		65	67	2
13	whole numbers	87	92	5
15	" "	84	89	5
31	Decimal	72	78	6
32	whole numbers	73	78	5
Test 7 (30 items)	Arithmetic Concept	64	68	4
Recognition		60	65	5
2	place values	49	61	17
9	greater than	78	85	7
14	place values	69	76	7
20	square inches measure areas	41	46	5

* Above National Reference Group

		5.7 STATE	5.6 NATIONAL	DIFFERENCE
Test 7 Cont'd				
Translation		67	70	3
Equations		74	77	3
10	finding unknown	76	81	5
15	" "	63	68	5
Comparisons		62	69	7
4	greatest divisor - four choices	43	53	10
7	smallest value - four choices (%)	84	89	5
17	greatest value four choices (common fractions)	44	55	11
23	shorter than - inches	64	70	6
Other Relationships		68	72	4
3	"one week after"	61	69	8
18	road map scale	68	75	7
19	missing numeral in series	53	58	5
Analysis		53	56	3
Organization		53	56	3
16	information needed to solve problem	72	78	6
28	smallest value - % and common fraction	30	37	7
Test 8 (20 items)	Arithmetic Applications	60	65	5

		5.7 STATE	5.6 NATIONAL	DIFFERENCE
Test 8 Cont'd				
Selecting Method		60	65	5
37	finding cost	57	62	5
42	number of windows washed	67	77	10
43	number of tickets purchased	62	69	7
47	finding fraction of total	38	47	9
49	average height	35	40	5
Solving Problem		69	75	6
31	finding unknown	73	80	7
32	hours to minutes	83	88	5
34	division	75	80	5
36	cents to decimal	68	75	7
39	determine process	63	70	7
46	fractions	56	62	6
Organization		50	54	4
33	finding unknown	62	68	6
38	" "	54	61	7
41	temperature	54	59	5
44	finding unknown	47	52	5
45	" "	45	51	6
Test 9 (20 items)	Study Skills - Reference	53	58	5
Parts of books		51	59	8
Test 10 (30 items)	Study Skills - Graphic	60	63	3
Translation		62	65	3

	5.7 STATE	5.6 NATIONAL	DIFFERENCE
Test 10 Cont'd			
Relationships	63	68	5
Conclusions	59	62	3